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HIDS 505 Assignment 4 - Create a Virtual Machine and a public Web server

1. In the Cloud Shell, use gcloud to create a new virtual machine instance from the command line: `gcloud compute instances create "vm_firstname"` (all lower case)
 - a. I created 'vm-joelle' in the shell command line (see below). The External IP in the screenshot below is different from the end result External IP because I originally downloaded NGIVX in the shell command line terminal and not with SSH and I had to delete the created vm and restart. However, the initial step of creating 'vm-joelle' is the same. Also, the use of "_" is not allowed when creating a VM instance in the shell command line terminal.

The screenshot shows the Google Cloud Platform interface for VM instances. The top navigation bar includes the Google Cloud logo, a project selector set to 'hids505-joelle', a search bar, and utility icons. The left sidebar shows the 'Compute Engine' menu with 'Virtual machines' expanded, highlighting 'VM instances'. The main content area is titled 'VM instances' and includes tabs for 'INSTANCES', 'OBSERVABILITY', and 'INSTANCE SCHEDULES'. A table lists the VM instances:

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
✓	joelle-vm	us-east1-b			10.142.0.2 (nic0)	34.139.102.199 (nic0)	RDP
✓	vm-joelle	us-east1-c			10.142.0.3 (nic0)	34.73.86.181 (nic0)	SSH

Below the table is a 'Related actions' section with a 'SHOW' link. At the bottom, the 'CLOUD SHELL' terminal window is open, showing the command `gcloud compute instances create vm-joelle` and its output:

```
- Invalid value for field 'resource.name': 'vm_joelle'. Must be a match of regex '(?:[a-z](?:[-a-z0-9]{0,61}[a-z0-9])?)'
```

```
jkf60@cloudshell:~ (hids505-joelle) $ gcloud compute instances create vm-joelle
Did you mean zone [us-east1-c] for instance: [vm-joelle] (Y/n)? Y

Created [https://www.googleapis.com/compute/v1/projects/hids505-joelle/zones/us-east1-c/instances/vm-joelle].
NAME: vm-joelle
ZONE: us-east1-c
MACHINE_TYPE: m1-standard-1
PREEMPTIBLE:
INTERNAL_IP: 10.142.0.3
EXTERNAL_IP: 34.73.86.181
STATUS: RUNNING
jkf60@cloudshell:~ (hids505-joelle) $
```

2. Installing NGINX web server and getting root access

```
SSH-in-browser

Linux vm-joelle 5.10.0-21-cloud-amd64 #1 SMP Debian 5.10.162-1 (2023-01-21) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
joelle@vm-joelle:~$ sudo su -
root@vm-joelle:~# apt-get update
Get:1 http://security.debian.org/debian-security bullseye-security InRelease [48.4 kB]
Get:2 http://packages.cloud.google.com/apt google-compute-engine-bullseye-stable InRelease [5146 B]
Get:3 http://packages.cloud.google.com/apt cloud-sdk-bullseye InRelease [6397 B]
Hit:4 http://deb.debian.org/debian bullseye InRelease
Get:5 http://deb.debian.org/debian bullseye-updates InRelease [44.1 kB]
Get:6 http://deb.debian.org/debian bullseye-backports InRelease [49.0 kB]
Get:7 http://packages.cloud.google.com/apt google-compute-engine-bullseye-stable/main amd64 Packages [1892 B]
Get:8 http://security.debian.org/debian-security bullseye-security/main Sources [184 kB]
Get:9 http://security.debian.org/debian-security bullseye-security/main amd64 Packages [222 kB]
Get:10 http://packages.cloud.google.com/apt cloud-sdk-bullseye/main amd64 Packages [240 kB]
Get:11 http://deb.debian.org/debian bullseye-backports/main Sources.diff/Index [63.3 kB]
Get:12 http://deb.debian.org/debian bullseye-backports/main amd64 Packages.diff/Index [63.3 kB]
Get:13 http://deb.debian.org/debian bullseye-backports/main Translation-en.diff/Index [63.3 kB]
Get:14 http://deb.debian.org/debian bullseye-backports/main Sources T-2023-02-10-1415.23-F-2023-02-05-2012.59.pdfiff [33.3 kB]
Get:15 http://deb.debian.org/debian bullseye-backports/main Sources T-2023-02-10-1415.23-F-2023-02-06-0207.10.pdfiff [55.1 kB]
Get:14 http://deb.debian.org/debian bullseye-backports/main Sources T-2023-02-10-1415.23-F-2023-02-05-2012.59.pdfiff [33.3 kB]
Get:15 http://deb.debian.org/debian bullseye-backports/main amd64 Packages T-2023-02-10-1415.23-F-2023-02-06-0207.10.pdfiff [55.1 kB]
Get:16 http://deb.debian.org/debian bullseye-backports/main Translation-en T-2023-02-10-1415.23-F-2023-02-06-1404.05.pdfiff [12.7 kB]
Get:16 http://deb.debian.org/debian bullseye-backports/main Translation-en T-2023-02-10-1415.23-F-2023-02-06-1404.05.pdfiff [12.7 kB]
Fetched 1092 kB in 1s (888 kB/s)
Reading package lists... Done
root@vm-joelle:~#
```

```
SSH-in-browser

Preparing to unpack .../23-libnginx-mod-http-xslt-filter_1.18.0-6.1+deb11u3_amd64.deb ...
Unpacking libnginx-mod-http-xslt-filter (1.18.0-6.1+deb11u3) ...
Selecting previously unselected package libnginx-mod-mail.
Preparing to unpack .../24-libnginx-mod-mail_1.18.0-6.1+deb11u3_amd64.deb ...
Unpacking libnginx-mod-mail (1.18.0-6.1+deb11u3) ...
Selecting previously unselected package libnginx-mod-stream.
Preparing to unpack .../25-libnginx-mod-stream_1.18.0-6.1+deb11u3_amd64.deb ...
Unpacking libnginx-mod-stream (1.18.0-6.1+deb11u3) ...
Selecting previously unselected package libnginx-mod-stream-geoip.
Preparing to unpack .../26-libnginx-mod-stream-geoip_1.18.0-6.1+deb11u3_amd64.deb ...
Unpacking libnginx-mod-stream-geoip (1.18.0-6.1+deb11u3) ...
Selecting previously unselected package nginx-core.
Preparing to unpack .../27-nginx-core_1.18.0-6.1+deb11u3_amd64.deb ...
Unpacking nginx-core (1.18.0-6.1+deb11u3) ...
Selecting previously unselected package nginx.
Preparing to unpack .../28-nginx_1.18.0-6.1+deb11u3_all.deb ...
Unpacking nginx (1.18.0-6.1+deb11u3) ...
Setting up libxau6:amd64 (1:1.0.9-1) ...
Setting up libxdmcp6:amd64 (1:1.1.2-3) ...
Setting up libxcb1:amd64 (1.14-3) ...
Setting up libcups2:amd64 (2.4.2-1) ...
Setting up libidn2-0:amd64 (2.3.1-1) ...
Setting up nginx-common (1.18.0-6.1+deb11u3) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /lib/systemd/system/nginx.service.
Setting up libjbig0:amd64 (2.1-3.1+b2) ...
Setting up libjpeg62-turbo:amd64 (1:2.0.6-4) ...
Setting up libx11-data (2:1.7.2-1) ...
Setting up libwebp6:amd64 (0.6.1-2.1) ...
Setting up fonts-dejavu-core (2.37-2) ...
Setting up libgeoip1:amd64 (1.6.12-7) ...
Setting up libx11-6:amd64 (2:1.7.2-1) ...
Setting up libtiff5:amd64 (4.2.0-1+deb11u3) ...
Setting up geoip-database (20191224-3) ...
Setting up libxml2:amd64 (2.9.10+dfsg-6.7+deb11u3) ...
Setting up libnginx-mod-mail (1.18.0-6.1+deb11u3) ...
Setting up libxpm4:amd64 (1:3.5.12-1) ...
Setting up fontconfig-config (2.13.1-4.2) ...
Setting up libnginx-mod-stream (1.18.0-6.1+deb11u3) ...
Setting up libnginx-mod-stream-geoip (1.18.0-6.1+deb11u3) ...
Setting up libnginx-mod-http-geoip (1.18.0-6.1+deb11u3) ...
Setting up libxslt1.1:amd64 (1.1.34-4+deb11u1) ...
Setting up libfontconfig1:amd64 (2.13.1-4.2) ...
Setting up libnginx-mod-http-xslt-filter (1.18.0-6.1+deb11u3) ...
Setting up libgd3:amd64 (2.3.0-2) ...
Setting up libnginx-mod-http-image-filter (1.18.0-6.1+deb11u3) ...
Setting up nginx-core (1.18.0-6.1+deb11u3) ...
Upgrading binary nginx.
Setting up nginx (1.18.0-6.1+deb11u3) ...
Processing triggers for man-db (2.9.4-2) ...
Processing triggers for libc-bin (2.31-13+deb11u5) ...
root@vm-joelle:~#
```

```
Processing triggers for man-db (2.9.4-2) ...
Processing triggers for libc-bin (2.31-13+deb11u5) ...
root@vm-joelle:~# ps auxw | grep nginx
root      1787  0.0  0.3 58420 11824 ?        S      18:48   0:00 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;
www-data  1790  0.0  0.0 58792 3308 ?          S      18:48   0:00 nginx: worker process
root      1817  0.0  0.0 5136   640 pts/0    S+     18:48   0:00 grep nginx
root@vm-joelle:~#
```

3. External IP test: External IP 34.148.150.133

VM instances

Filter

Enter property name or value

<input type="checkbox"/>	Status	Name ↑	Zone	Recommendations	In use by	Internal IP	External IP	Connect
<input type="checkbox"/>		joelle-vm	us-east1-b			10.142.0.2 (nic0)		RDP ▾ ⋮
<input type="checkbox"/>		vm-joelle	us-east1-c			10.142.0.5 (nic0)	34.148.150.133 (nic0)	SSH ▾ ⋮

Related actions ^ HIDE

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34.73.86.181

x

+

←

→

↺

🕒 34.73.86.181

📄

☆

🔒

⚙️

📱

Paused

Gmail

YouTube

Maps

Seattle Clinical Re...

Home



This site can't be reached

34.73.86.181 took too long to respond.

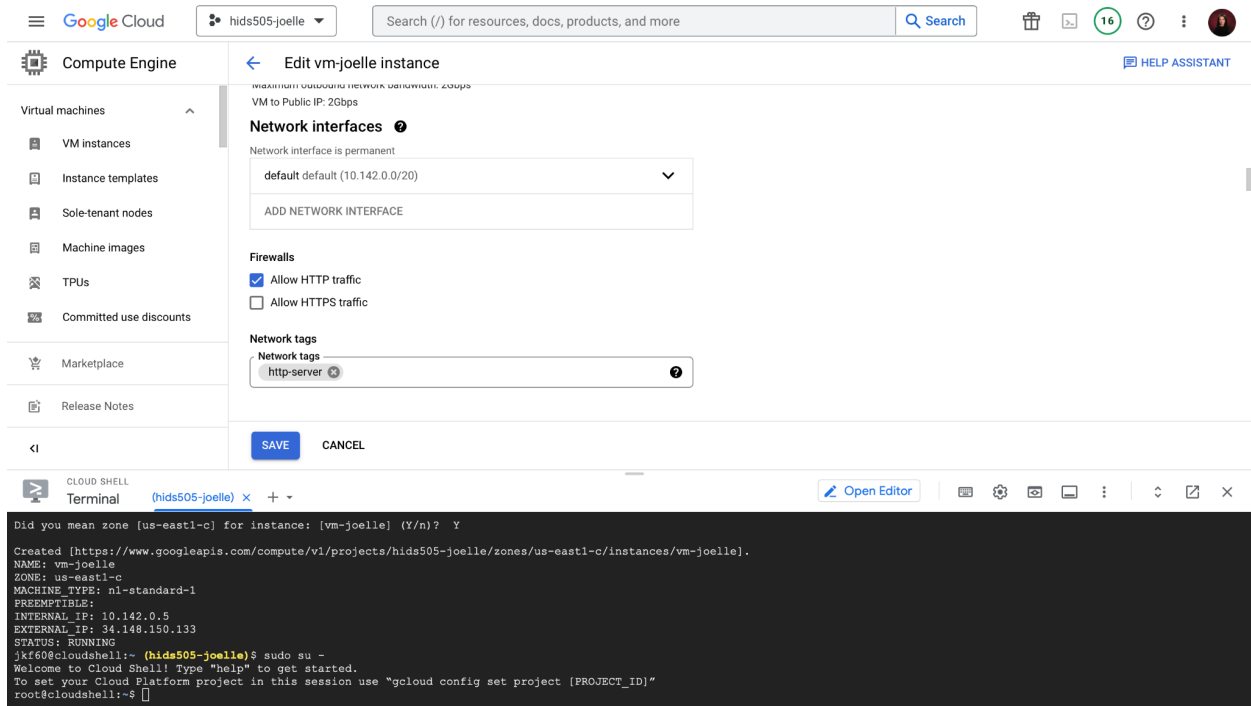
- Try:
- Checking the connection
 - [Checking the proxy and the firewall](#)

ERR_CONNECTION_TIMED_OUT

Details

Reload

4. Allowing http traffic



Google Cloud

hids505-joelle

Search (/) for resources, docs, products, and more

Search

16

HELP ASSISTANT

Compute Engine

Virtual machines

- VM instances
- Instance templates
- Sole-tenant nodes
- Machine images
- TPUs
- Committed use discounts

Marketplace

Release Notes

Edit vm-joelle instance

MAXIMUM OUTBOUND NETWORK BANDWIDTH: 20Gbps
VM to Public IP: 2Gbps

Network interfaces ⓘ

Network interface is permanent

default default (10.142.0.0/20)

ADD NETWORK INTERFACE

Firewalls

- ☒ Allow HTTP traffic
- ☐ Allow HTTPS traffic

Network tags

Network tags

http-server ⓘ

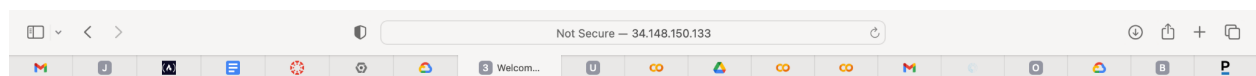
SAVE CANCEL

CLOUD SHELL

Terminal (hids505-joelle) × +

Open Editor

```
Did you mean zone [us-east1-c] for instance: [vm-joelle] (Y/n)? Y
Created [https://www.googleapis.com/compute/v1/projects/hids505-joelle/zones/us-east1-c/instances/vm-joelle].
NAME: vm-joelle
ZONE: us-east1-c
MACHINE_TYPE: n1-standard-1
PREEMPTIBLE:
INTERNAL_IP: 10.142.0.5
EXTERNAL_IP: 34.148.150.133
STATUS: RUNNING
jkf60@cloudshell:~ (hids505-joelle)$ sudo su -
Welcome to Cloud Shell! Type "help" to get started.
To set your Cloud Platform project in this session use "gcloud config set project [PROJECT_ID]"
root@cloudshell:~$
```



Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.